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BULLETIN
OF THE
TORREY BOTANICAL CLUB.

Vol. VIII.]

New York, January, 1881.

[No. I.]

§ I. American Fresh-Water Algae.

By FRANCIS WOLLE.

*Species and Varieties of Desmids new to Science.

(PLATE VI.)

Micrasterias Mahabuleshwarensis, Hobson, var. AMERICANA. *n.* var. (Plate VI., Fig. 1). This plant does not quite conform to the one described by Hobson. It has similar end-lobes, but the margins of the lateral ones are more like those of *M. Americana*, Ehrb. The lobes themselves are unlike; in the one they are entire, in the other they are divided into two lobules. (Cf. Figs 1 and 2.) This may be a variety referred to by Rabenhorst in his *Flora Europaea Algarum*. Vol. III., p. 196, where he says: "*M. Americanae* forma esse videtur."

Micrasterias Americana, Ehrb., var. *recta*, Wolle (Plate VI., Fig. 2). Described in BULLETIN, Vol. VI., p. 122.

MICRASTERIAS PSEUDOFURCATA, *n. sp.* (Plate VI., Fig. 3). *M. magna*, levis; semicellulis trilobis; lobis basalibus attenuatis, profunde incis; lobulis plus minus divergentibus, apice bidentatis; lobo polari anguste cuneato; angulis longe sub-rectis productis; apice trifurcatis. Diam. .006"—.007".

Hab. Ponds, New Jersey and Florida.

This form is similar to *M. furcata*, Ag., but differs in the absence of the middle lobe.

MICRASTERIAS TRIANGULARIS, *n. sp.* (Plate VI., Fig. 4.) *M. permagna*, orbicularis; semicellulis quinquelobis; lobo polari triangulari, lateralibus rectis vel leviter undulatis, subaequalibus, angulis, lateris in mucronem productis; lobulis et lobis intermediis aequalibus, repetito-bilobulatis; lobulis bifurcatis, angulis cum spinis curvato-divergentibus elongatis armatis. Diam. .009"—.01."

Hab. In pond on Broadtop Mountain, Pa.

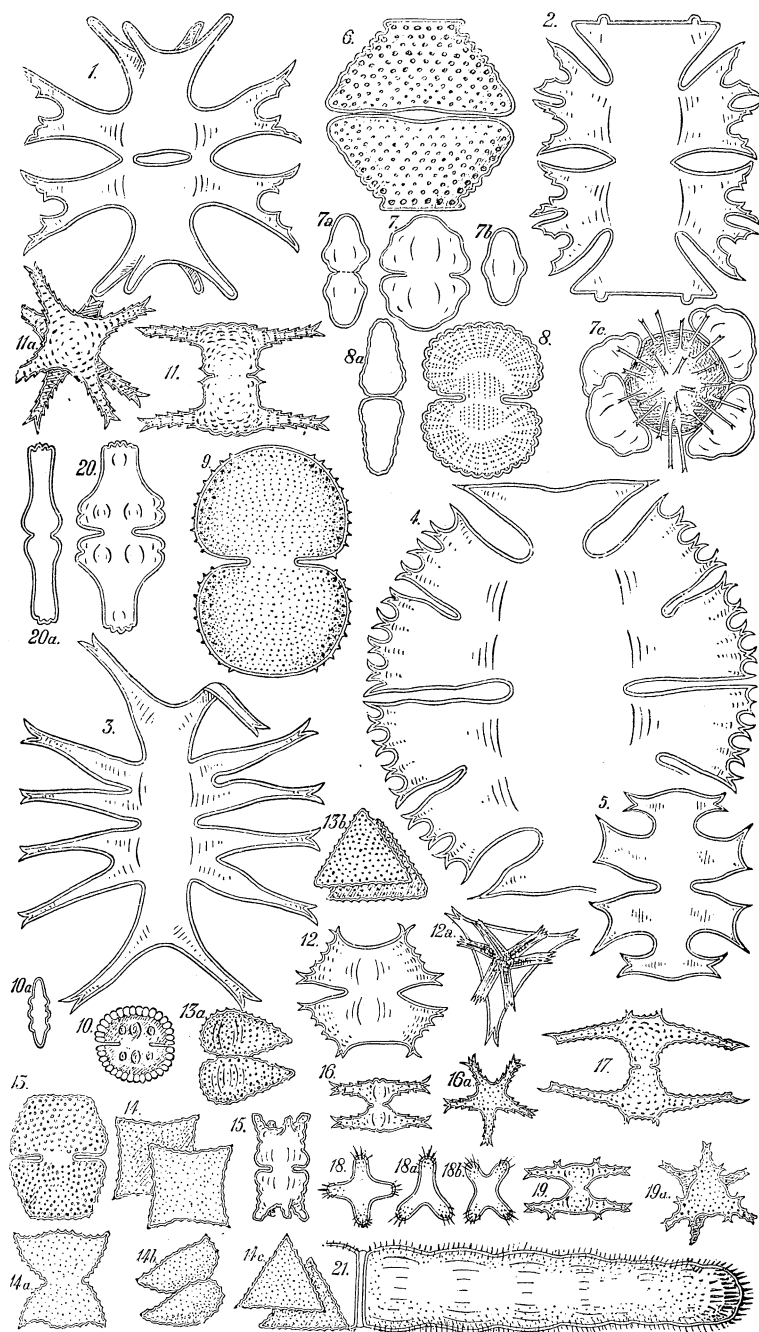
The lobules next the sinus, and next the polar are not unfrequently a simple point, not bifurcate.

Micrasterias pinnatifida, Ktz. var. *inflata*, Wolle. (Plate VI., Fig. 5.) Described in BULLETIN, Vol. VI., p. 122.

Cosmarium irregulare, Wolle. (Plate VI., Fig. 6.) Described in BULLETIN, Vol. VI., p. 186.

COSMARIUM MARGARITUM, *n. sp.* (Plate VI., Fig. 7, front view; 7a side view; 7b, end view; 7c, zygospore with young plants attached). *C. parvum*, variabile, suborbiculare, modo depressum, modo ad tertium longius quam latius; sinu anguste lineari; semicellulis suborbicularibus, ambitu undulato-crenatis, crenis lateribus plerumque triundulatis, scrobiculis basalibus modice instructis; dorso convexis nonnunquam retusis; a vertice visis ovalibus, medio ventricosis inflatis;

* A few of these forms were described in the BULLETIN, Vol. VI., pp. 121-123, and 186, and, as figures have been asked for, they are herewith given on the accompanying Plate (Plate VI.).



NEW AMERICAN DESMIDS.

cytiodermate leve ut margarita nitente. Zygosporis sphaericis, spinis elongatis apice bifidis obsitis. Diam. .0009"—.001".

Hab. Splitrock Pond, New Jersey.

This plant might pass for a variety of *C. venustum*, Bréb., or *C. Naegelianum*, Bréb. had the end no central inflation. *C. phaseolus*, Bréb. possesses the inflations, but is entire.

Cosmarium pectinoides, Wolle. (Plate VI., Fig. 8, front view; 8a, side view). Described in BULLETIN, Vol. VI., p. 122.

This may be a variety of *C. pulcherrimum*, Nordst. It differs from that species, however, in the more numerous radiating rows of granules.

Cosmarium dentatum, Wolle. (Plate VI., Fig. 9). Described in BULLETIN, Vol. VI., p. 122.

A fine, distinct species. It approaches *C. Brebissonii*, Menegh., but is more than twice the size. It exhibits the conical granules, like teeth, on the sides of the cells. The ends are devoid of teeth. Not infrequent in Pennsylvania and in New Jersey.

COSMARIMUM DONNELLI, *n. sp.* (Plate VI., Fig. 10, front view; 10a, end view). *C.* mediocre, plerumque fere tam longum quam latum, suborbiculare, sinu anguste-lineari; semicellulis subsemicircularibus, dorso plus minus depressis, margine circiter 18 margaritis ovalibus, in series singulas, composito. Diam. et lat. .0015"—.0018". Hab. Ponds, Florida. Collected by Capt. J. Donnell Smith, 1879.

This species comes nearest *C. monomazum*, Lund, but is a distinct form.

STAURASTRUM ODONTATUM, *n. sp.* (Plate VI., Fig. 11 front view; 11a, end view). *St.* magnum, tam longum quam latum; semicellulis a fronte visis, quadrangularibus angulis superioribus in cornu gracile elongatis, incurvis vel rectis, marginibus plus minus profunde serrato-dentatis in apicem furcatum productis; angulis inferioribus dentibus armatis, a vertice visis quadriradiatis. Diam. sine rad. .0008"—.001"; cum rad., .0016"—.003"; long., .0016"—.0018".

Hab. Splitrock Pond, New Jersey, July, 1880.

This plant has much in common with some varieties of *St. gracile*, Ralfs, but is more robust, has quadrangular semicells, is larger, and is furnished with teeth near the sinus.

Staurostrum cuneatum, Wolle. (Plate VI., Fig. 12). Described in BULLETIN, Vol. VI., p. 123.

STAURASTRUM BOTROPHILUM, *n. sp.* (Plate VI., Fig. 13, front view; 13a, side view; 13c, end view). *St.* mediocre, paulo longius quam latius, distincte granulosum; granulis in series regulares ordinatis; a fronte, semicellulis triangularibus, angulis inferioribus rotundatis subito in dorsum late truncatis, a lateribus, late ellipticis divergentibus, a vertice, triangularibus. Diam. .0015"—.0016".

Hab. Swampy places near Bethlehem, Pa.

This form belongs to as class like *St. pygmaeum*, Bréb., *St. punctulatum*, Bréb., *St. rugulosum*, Bréb., etc., but is separated by the Cosmarium-like, truncate form as seen in front view.

STAURASTRUM PRINGLEI, *n. sp.* (Plate VI., Fig. 14, quadrangular-end view; 14a, front view; 14b, side view; 14c, triangular-end view). *St.* parvum, distincte granulatum, tam longum quam latum,

medio plus minus constrictum; sinu acutangulo ampliato; semicellulis subtriangularibus, lateribus rotundatis, dorso subplanis, medio convexis, subapice retusis, angulis acutis; a vertice visis tri-vel tetragonis; in forma trigona lateribus fere rectis; in forma tetragona retusis, angulis acutis. Diam. .0011"—.0013".

Hab. Nebraska Notch, Vt. Collected by C. G. Pringle.

The form nearest to this is *St. Kjellmani*, Wille, collected in Nova Zembla, but it differs in size and in proportions of length to breadth; in having the angles acute, not rounded, and turned upward in the direction of the sides, not straight; in having triangular, not elliptical semicells; and in its back being straight, elevated in the centre, and retuse, not rounded.

STAUSTRUM DONNELLII, *n. sp.* (Plate VI., Fig. 15.) *St. parvum*, duplo longius quam latius, oblongo quadratum; cytiodermate punctato et sulcato; semicellulis quadratis, angulis basalibus rotundatis, lateribus leviter sinuato-retusis; angulis superioribus (quatuor) in cornu breve obtusum divergenter productis; a vertice visis, quadrangularibus. Diam. .0006".

Hab. Florida. Collected by Capt. John Donnell Smith.

The form nearest this plant is *St. pileolatum*, Bréb., but it differs in having the ends furnished with three conical processes, and in being triangular in end-view.

STAUSTRUM PENTACLADUM, *n. sp.* (Plate VI., Fig. 16 and 16a, front and end views.) *St. mediocre*, granulato-asperum; semicellulis ventre inflatis, dorso rotundatis, angulis in cornu apice distincte trifurcatum productis; a vertice visis quinque-radiatis; radiis substrictis, margine serrato-dentata. Diam. .0015".

Hab. Splitrock Pond, New Jersey, July, 1880.

St. gracile, Ralfs, comes near this form, but its end-view is triradiate. N. Wille, of Norway, has published a variety, *nanum*, which is quadriradiate. My plant has five-arms, and the membrane is unusually rough; and, in addition, the points on the ends of the arms are very prominent and divergent.

Staustrium grillatorium, Nordst, VAR UNGULATUM, *n. var.* (Plate VI., Fig. 16.) Var. cornu in apicem aculeis singulis curvatis, similibus aquilae unguis productum.

Staustrium cruciatum, Wolle. (Plate VI., Fig. 18.) Described in BULLETIN, Vol. VI., p. 123.

STAUSTRUM HELENEANUM, *n. sp.* (Plate VI., Figs 19 and 19a, front and end views.) *St. parvum*, granulato-asperum; granulis in series transversas ordinatis; semicellulis subellipticis, dorso modice convexis, ventre tumidis; angulis in cornu productis; a vertice tri-radiatis; radiorum basis inflatis, marginibus prominentibus apice furcatis vestitis. Diam. .0012"—.0015".

Hab. Splitrock Pond, N. J., frequent. 1880.

There is a similarity between this desmid and *St. vestitum*, Ralfs, but, while the latter has two slender forked spines at the middle of each side, mine has stouter forked processes on the inflated base of each arm; and, in addition to this, the plant is only about half the size of *St. vestitum*.

EUASTRUM ATTENUATUM, *n. sp.* (Plate VI., Fig. 20, front view;

20a, side view.) E. mediocre, diametro duplo longiore; semicellularis pyramidalibus, basi dilatatis utroque margine laterali semel sinuatis, in lobum polare rectum truncatum attenuatis, apice crenato-rotundatis; lobo polari uno et lobo basali duobus vel tribus tumoribus instructo, cytodermate subtilissimo punctato. Diam. et lat. .0013", long. .0026".

Hab. Ponds near Bethlehem, Pa.

DOCIDIUM SPINULOSUM, n. sp. (Plate VI., Fig. 21, a semicell.) D. valdidum spinulosum subcylindricum undulatum octies—decies longius quam latius, medio valde constrictum; semicellularum stricturnis margine 3-4 plus minus prominentibus, modice attenuatis; cytodermate dense spinifero; spinulis apicis rotundatis duplo majoribus aliis. Diam. .0016"—.0018."

Hab. Pond, Dennisville, N. J., July, 1880.

Pleurotaenium nodulosum, Bréb., *Docidium hirsutum*, Bailey, and *D. nodosum*, Bailey, have features in common with this form. I separate it because of the armor of spines with which it is clothed. These are not hairs—not gelatinous contractions, but decided spines, and those of the ends of the cells are longer and stronger than those on the body of the cell.

§ 2. New or Little-Known Ferns of the United States. No. 9.

28. CYSTOPTERIS MONTANA, Bernh.—When I had occasion to describe this fern in the "Ferns of N. America" it had not been found anywhere in the United States, the American range being from Labrador to the Rocky Mountains of British America. In Rothrock's report I ventured to say that it might possibly occur in California or Colorado. Last summer it was found in Colorado by Mr. T. S. Brandegee, on the Mt. Antero Spur of the Sawatch Range, at 10,400 feet above the sea. Mr. Brandegee writes that "two colonies of it grow there twenty feet apart in damp moss about the roots of *Abies Engelmanni*. The fern has a very slender creeping rootstock, and the scattered fronds are from three to five inches long, broadly ovate-pentagonal in outline, and very delicately three to four times pinnate. The species occurs in the mountains of Europe, from Scotland and Norway to the Appenines and the Carpathians.

29. ASPIDIUM ACULEATUM, var. PROLIFERUM, Wollaston (*sub Polysticho angulari*). This is the most delicate and finely divided form of the species; a large frond of it is figured on plate 13 of Moore's "Nature-printed Ferns." The character given by Moore reads thus: "Fronds lanceolate, lax, bi- or tri-pinnate; pinnules narrow, attenuated, distinctly stalked, usually deeply lobed with the lobes widely separated; proliferous on the rachis." This form has been found in two or three places in England, and is very common in cultivation. Not long ago it was sent me from Chicago marked "Californian." I learn that it was found in company with a narrow form of the less divided var. *lobatum* by Mrs. A. E. Kent, of San Rafael, who writes that "it is very abundant in the southern part of California, and is commonly called "San Diego fern." It is somewhat strange that none of the San Diego botanists has sent it here; but now that it is reported it is to be hoped they will search for it.